National Park Service
U.S. Department of the Interior

Federal Lands Transportation Program

Rehabilitate Roadways In Mount Rainier N.P.

The Sunrise Road and the Sunrise Developed Area in Mount Rainier National Park (MORA). (Photo by John Chao).

Project Description. Deterioration of roadways and bridges along multiple routes on the east side of Mount Rainier National Park, as well as an increasing intensity of storm flows in the White River, are threatening the public's continued access to this area. Rehabilitation work is needed to ensure ongoing use of the roads, which is vital to park operations, the local economy, and to visitor use and enjoyment.

Background. At an elevation of 6,400 feet, Sunrise is the highest point that can be reached by vehicle at Mount Rainier National Park. On clear summer days, Sunrise provides breathtaking views of Mount Rainier, Emmons Glacier, and vibrant wildflower meadows. Sunrise Point offers nearly 360-degree views of the surrounding valleys, Mount Rainier, and other volcanoes in the Cascade Range such as Mount Adams. These views and an excellent trail system make Sunrise the second most visited location in the park. The estimated average annual visitation to the popular Sunrise Developed Area is in excess of 350,000 visitors, with a typical peak season (July through October) weekend at nearly 4,500 visitors per day.

Budget constraints have limited rehabilitation efforts to only a portion of the paved roadway system at Mount Rainier, and much of this work has been concentrated on the west side of the park, on the roads supporting access to the Longmire and Paradise developed areas. The east side roadways are critical for both visitor and park operations access. Detour routes are available outside the park, but add over 100 miles to the journey.

The roadways are classified as structures contributing to the significance of the park's contiguous National Historic Landmark District, recognized as a rare example of early park master planning.

Project Segments.

Segment 1: Sunrise Road **$35.1 million**

Rehabilitate the 15.4 miles of the Sunrise Road from its intersection with Highway 410 (Mather Memorial Parkway) to the Sunrise Developed Area. The project also includes the mile-long access road to White River Campground, a very popular summer campground with 100-plus sites and a trailhead for the second most used climbing route of Mount Rainier. Work includes removal and/or stabilization of roadway base, sub-base, shoulder and rehabilitation of the pavement surface, placement of reinforced rockery retaining walls to stabilize failing roadway fill sections, as well as drainage improvements, general slope stabilization/erosion repair, signage/striping, and revegetation.

Mega-Project* Profile: MORA Roadway Rehabilitation

Estimated cost: $85 million (preliminary) over a 6-year period

Percentage of Pacific West Region (PWR) FLTP Annual Allotment: 175%

Percentage of NPS FLTP Annual Allotment: 40%

Top: Floodwaters of the nearby White River flowing down Highway 410/Mather Memorial Parkway, northeast entrance (looking north towards national forest boundary, December 2006).

Middle: Rough Road signs warn motorists of problem surfaces.

Bottom: Fryingpan Creek Bridge, October 2014.

* Mega Projects: The NPS transportation system is supported, in part, by funds from the Federal Lands Transportation Program (FLTP). Currently, the NPS is authorized an annual budget of $268 million from the FLTP. These funds are apportioned by formula among the seven NPS Regions. Most of these funds are used for "transportation asset management" – that is, to pay for the work required to keep existing assets in good condition. There are some projects, such as a major bridge repair or ship replacement, that require a much larger amount of funding than is available on an annual basis to a Region. These we call "Mega Projects." The NPS is pursuing strategies to fund these projects.

In addition, significant rehabilitation work is needed on the Fryingpan Creek Bridge (1931), an unusual three-hinged steel web-arch girder bridge designed for the frequently shifting Fryingpan Creek. Work entails:

- replacing the concrete deck
- repairing/repointing stone masonry on abutment wing walls
- repairing and repainting all structural steel
- replacement of missing coping stones.

Work will also include analysis and recommendations for safety issues at the adjacent Summerland/Fryingpan Creek trailhead parking lot, which is heavily used, and is located on a sharp curve just beyond the bridge.

Structural and design deficiencies in the roadway are contributing to accelerated deterioration. The deficiencies include drainage problems, embankment slumps, soft spots, pavement warping and cracking, narrowing shoulders, deteriorating and ineffective historic stone masonry retaining and guard walls, and overly-steep, unprotected side slopes adjacent to the roadway.

Significant need for repairs to the Fryingpan Creek Bridge have been identified in the most current (August 2012) Bridge Inspection Report by FHWA; repairs are needed to prevent loss of load capacity and unsafe conditions from developing. Net construction costs for rehabilitation of the bridge are estimated at $3,850,000. Maintenance work continues on the roadway, but due to the condition of the road base and subgrade, pavement repairs are often only temporary.

Segment 2: Highway 410/Mather Memorial Parkway, MP 2.8 to MP 11.6 $21.1 million

The Mather Memorial Parkway (MMP) was designated in honor of Steven T. Mather (first NPS Director) through a 1931 agreement between the Secretaries of Agriculture and Interior. In 1998, the MMP was designated an "All American Road" in the National Scenic Byways Program.

This project will rehabilitate the 8.8-mile segment of the MMP from the park's northeast boundary to Cayuse Pass at the intersection with Highway 123. Work will address frequent flooding problems along the northern two miles of roadway, by directing storm flows away from the road embankment and armoring the road from erosion damage.

The work will also:

- correct irregular roadway alignment/width
- repair road base failures
- correct various drainage problems
- mill, level and place new asphalt surfacing place horizontal drainage wells to reduce sliding and roadway movement in a geologic fault zone
- install steel-backed timber guardrail as necessary to improve overall traffic safety.

Work also includes soil stabilization, erosion repair, and revegetation. This segment of the MMP is also one of the five primary east-west cross-Cascade highways in the state, linking the Puget Sound and Yakima areas.

Segment 3: Highway 123, Southeast Entrance to Panther Creek $10.7 million

This segment is the third and final phase of work to rehabilitate 13.8 miles of Highway 123 (designated Washington State Route 123 outside the park), from the southeast park boundary to its intersection terminus with Route 410/Mather Memorial Parkway at Cayuse Pass.

This route also serves an important regional link between Washington State Route 410 and US Highway 12, both serving as primary east-west access over the Cascade Mountain Range, linking the Puget Sound and Yakima metropolitan areas. There are no other routes which provide access inside the park which connect the northeast and southeast areas of the park.

This third phase of work is the 5-mile segment from the southeast park boundary to Panther Creek Bridge. Structural and design deficiencies in the roadway include drainage problems, surface slumps, soft spots, pavement warping and cracking, narrow shoulders, deteriorating and ineffective historic stone masonry retaining and guard walls, and overly-steep, unprotected side slopes adjacent to the roadway.

Work includes:

- removal and stabilization of roadway base
- sub-base reconstruction
- shoulder and pavement surfacing

Additionally, various bridge preservation work items at Laughingwater Creek Bridge are included. Work also includes placement of reinforced rockery retaining walls or embankments slopes to stabilize failing roadway fill sections, as well as general slope stabilization and erosion repair.

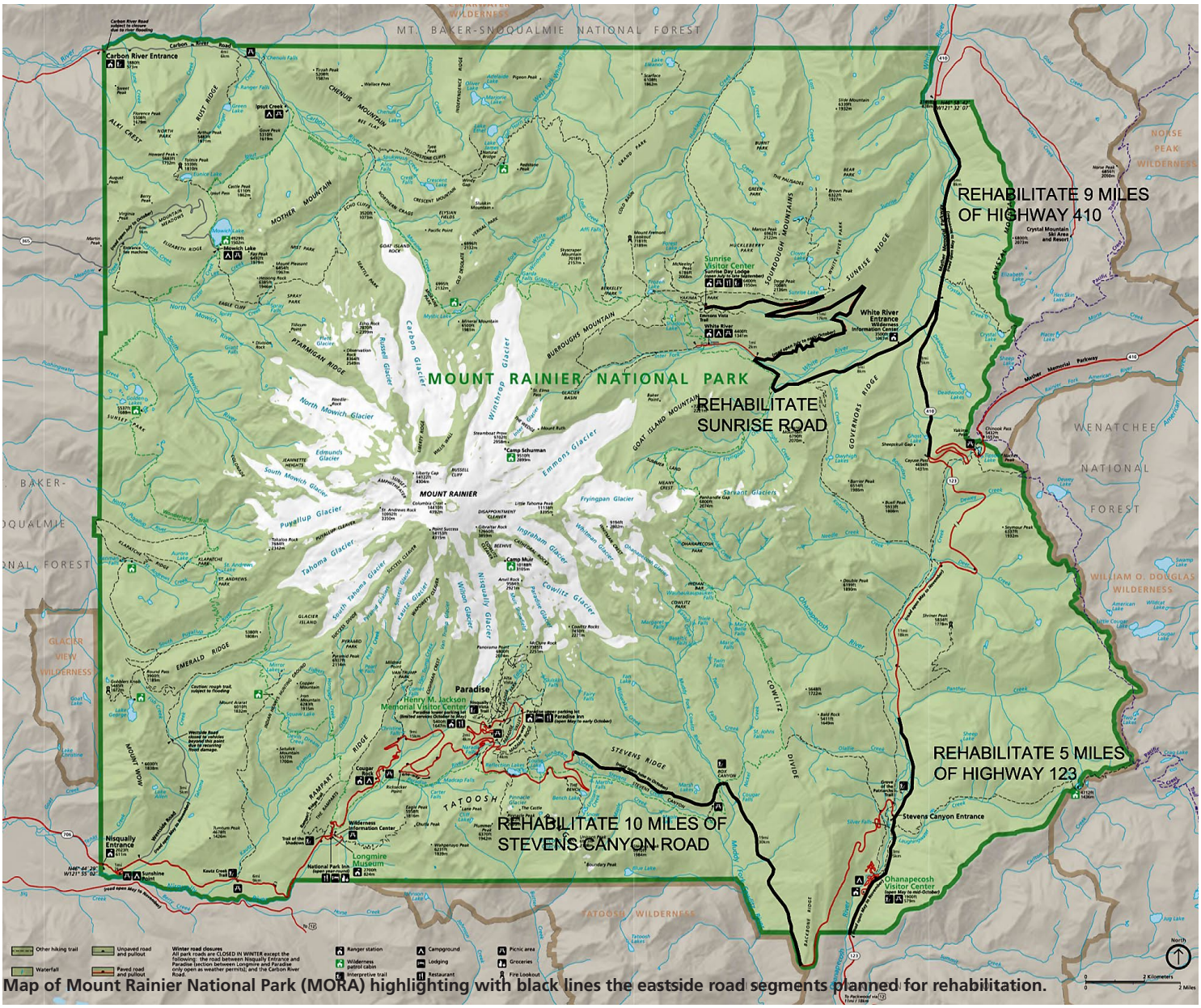
Segment 4: Rehabilitate Stevens Canyon Road, MP 5 to MP 14 **$18.1 million**

The work needed here is the second part of a two-phased project to rehabilitate the 19-mile length of the Stevens Canyon Road from its intersection with the Nisqually-Paradise Road to the park's east entrance at the intersection with Highway 123. This phase is the 9-mile segment from the Stevens Creek Bridge to the Backbone Ridge Summit. Stevens Canyon Road serves as the sole east-west access across the park, linking the Nisqually-Paradise Road to Washington State Route 123 and cross-park access to the popular Ohanapecosh and Sunrise Developed Areas (two of the busiest attraction areas in the park). The roadway provides access to numerous day-use waysides (Box Canyon, Reflection Lake, Backbone Ridge, Inspiration Point, etc.) as well as various trailheads leading to the historically significant Wonderland Trail, stretching around the mountain for more than 90 miles.

Work on this road segment includes:

- stabilization of failing roadway base pavement resurfacing
- repair/replacement/repointing of 1.2 miles of historic stone masonry retaining/guard walls
- placement of reinforced rockery retaining walls or reinforced embankments to stabilize failing roadway fill sections
- drainage improvements
- general slope stabilization/erosion repair signage/striping and revegetation
- resurfacing the Box Canyon Picnic and Overlook Parking areas

Current status. All segments are currently on hold awaiting funding. Segment 2/Highway 410 is planned for preliminary design start-up in summer of 2016, and is tentatively programmed for construction in 2019 or 2020.



Map of Mount Rainier National Park (MORA) highlighting with black lines the eastside road segments planned for rehabilitation.